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NOTES FOR A KEYNOTE ADDRESS

by

THE HONOURABLE DONALD S. MACDONALD

MINISTER OF ENERGY, MINES AND RESOURCES

on

"THE ROLE OF COAL IN ACHIEVING NATIONAL
SELF-SUFFICIENCY IN ENERGY"

to the

26TH CANADIAN CONFERENCE ON COAL

CALGARY

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Mr. Chairman and delegates to the 26th Canadian Coal Conference:

It was not long ago that coal was considered passé --part of the history of Canada but with no role in our future. Times have changed and as our discussions in the next few days will indicate, the question is not whether this energy commodity has a future, but rather how that future can be managed so that the greatest national benefit is realized.

Accordingly, I welcome this opportunity to deliver the keynote address at a conference dedicated to considerations relating to self-sufficiency in energy with emphasis on the use of coal. Clearly, the objective of self-sufficiency is on the minds of many Canadians these days and I can assure you is one of the principal criteria behind the development of new national energy policies. All industrialized nations are now concerned with their security of energy supply and we are fast approaching the time when fuels will no longer be used in random fashion, but rather in accordance with the quantity and quality of each type of energy. The use of coal in our future must be assessed in that context.

Before directing my remarks specifically to coal I would like to present a brief perspective on energy in Canada so that we can assess the potential for coal in the total energy situation. For example, it is important to realize that energy demand in Canada has increased over the past ten years at an annual rate which represents a doubling of demand over 13 years. That one statistic alone is full of meaning for the coal industry. While coal's share of the domestic energy market has declined over the decades of the 50s and 60s it has since reversed this trend. Given a doubling of domestic energy requirements over 13 years, and an increasing coal percentage in total energy consumption, it is readily apparent that the domestic demand for coal of some 27 million tons last year will increase greatly in the years ahead.

The magnitude and urgency of energy problems can be pictured more vividly if I refer briefly to some of the issues presently before the federal government relative to other energy sources. From my reference to expected growth in energy requirements I believe you will see that we face major tasks in meeting those requirements from all the sources at our disposal. There is no doubt that collectively we have a large energy resource potential in this country, but there are many obstacles and uncertainties to overcome before that potential can be realized.

Many people believe that the problems of coal are more manageable than those of other energy resources. I am sure that a number of you will disagree with that point, but whether or not it is so we do have a very large coal resource potential which can be unlocked by the ingenuity and enterprise of the coal miner and the processing and transportation experts.

When you think of this challenge think of it in the context for example, of the challenge facing the electrical industry of Canada:

-- The Gull Island power project on the Lower Churchill River in Labrador is being pursued to meet the future power needs of that province, which is now heavily dependent on imported fuels.

-- A nuclear power plant is being planned in New Brunswick to improve that province's security of energy supply as well as that of neighbouring provinces.

-- The tremendous James Bay hydroelectric program is moving ahead to meet Quebec's power needs in the mid-1980s and the Gentilly II nuclear reactor is under construction to help cover off requirements before James Bay power comes on line.

-- Further expansion of the Pickering nuclear station is underway in Ontario, which, along with other expansion plans for Ontario Hydro, give it the second largest nuclear program in North America.

Ontario Hydro is also proceeding with the construction of a 4,000 MW coal-fired station at Nanticoke which on completion in 1978 will have the second largest generating capacity of any station in Canada being exceeded only by Churchill Falls in Labrador.

-- Further development of the Nelson River hydroelectric potential is underway in Manitoba with the federal government having played a major role through the construction and ownership of the necessary high voltage direct current transmission facilities.

-- Electrical generation in Saskatchewan and Alberta will depend mainly on coal for the tremendous future expansion which is projected and many more developments such as Wabamun and Boundary Dam will be required to provide cheap strip coal to prairie minesite generating stations.

-- And, finally, further major hydroelectric developments are underway in British Columbia in the Peace River and Columbia River systems.

As part of the ongoing expansion of electric power facilities in Canada the federal government has offered to carry half the cost of regional electrical interconnection studies as well as to finance half of the cost of any approved projects. Here again our objective is to improve the efficiency of energy development and use in Canada and to enhance our security of supply. We should be mindful that our current forecasts suggest that some 35,000 MW of new hydro capacity will likely be developed in Canada over the next 15 years. If you add that to our existing base it represents a renewable source of energy almost equal to the total oil production in Canada today. It is not difficult to see why new priority is being given to the development of our remaining hydroelectric potential.

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The federal government now has a systematic uranium resource inventory program underway. This will be critical to the development of policies relative to domestic nuclear programs and in determining our export limitations. Only last week I announced uranium export controls which will ensure future supplies of that fuel to our electrical utilities. We also have coal, oil, and natural gas resource appraisals going forward on a continuing basis to assist us in safeguarding future domestic needs and to aid in the development of appropriate resource policies. The resource development outlook, in turn, helps the federal government in predicting future demands on the capital and labour market.

Here in western Canada, there is no need to comment on the magnitude of oil and gas resource development programs and pipeline proposals. You have seen the dramatic impact of oil and gas production growth on Alberta's economy. You know of plans to construct pipelines from the north. You are no doubt also aware however, that there has now been an extended period during which new resource discoveries have declined. To prevent a further reduction in resource availability major discoveries are needed in the frontier areas. We now must look to the Arctic and to the east coast offshore for the development of further reserves.

Another major challenge will be the opening up of the Alberta oil sands, particularly the 85% of the resource in the Athabasca region which must be recovered by in-situ techniques. This is a resource challenge that will call for co-operative **action on** the part of government and industry. The federal government is committed to a high priority of support for any plans designed to open up one of the world's greatest hydrocarbon resources.

Just how big is this energy resource challenge that faces us? It can of course be measured in many ways -- in BTUs, in manpower, in equipment and in dollars and cents. That last form of measure is significant to us all, so perhaps I can best place the challenge in perspective by saying that the projects I have briefly mentioned, and some I have not had time to mention, will involve capital expenditures in the next ten years in the range of 80 to 120 billion dollars -- that's 1974 dollars. Our best estimate at this time would be in the order of \$105 billion. This huge capital expenditure requirement reflects the high cost of nuclear and hydro power generation and the massive capital outlays required to open up the hydrocarbon potential of the frontier and of the Alberta oil sands.

With expenditures of such fantastic size we clearly must avoid the bunching of major projects if we are to minimize the impact on our economy. It is to avoid such bunching, that close liaison in planning, between federal and provincial governments, and industry, is so important.

And it has been in the light of the financial challenge in providing increased supplies, as well as the challenge on our available labour force and supply industries, that an office of energy conservation in my department is taking a hard look at just how necessary all that future demand for energy really is -- where can efficiencies be realized and where can we do without? Clearly, Canadians in the future may face some difficult decisions in this regard.

In this broader context, it may be seen that coal can make an important contribution to the rational goal of energy self-sufficiency.

Over the years, the Government of Canada has been deeply involved in programs to see the coal industry through tough times. I am thinking of the Federal subvention aid, more than \$327 million between 1928 and 1971, which sustained coal production in five provinces and promoted the export of metallurgical coal to Japan.

Modernization and mechanization has been encouraged through loans under the Coal Production Assistance Act - more than \$16 million of assistance between 1949 and 1970. Canadian iron and steel companies received another \$10 million between 1930 and 1970 for their use of indigenous coals under the Canadian Coal Equality Act.

In recent years, the Federal role has shifted to one of research and development on the technical and economic problems which constrain the industry. The objective has been to permit coal to play a broadening role in our quest for self-sufficiency in energy. Over the years, the Government in Ottawa has supplied many other services such as geological mapping, estimates of coal reserves, determination of coal quality, studies of extraction problems and the up-grading of coals for wider marketability.

More recently, my department has enlarged its Western Regional Laboratory to study ways of improving western coal for metallurgical quality coke and, in co-operation with the Saskatchewan Government, has begun an inventory of lignite which can be extracted economically, using current mining techniques. In Nova Scotia, a test plant was set up to lower sulphur content of Sydney coals for metallurgical applications.

Government concern for and assistance to the coal industry, then, has a long history. The government, and my department specifically, appreciates that the coal industry has a number of problems affecting production and marketing. The department also recognizes that it cannot do the full job alone. We seek a continuing and greater partnership with the governments of the coal-producing provinces and with the coal-producing companies. The period of inactivity has taken its toll in terms of

qualified people to work on the problems, and it only makes sense for us to pool the efforts of what is still a relatively small group of specialists. To do otherwise would surely be contrary to the best interests of both governments and industry.

WHAT THE ENERGY STUDY SAID ABOUT COAL

After three years of research, my department published Phase I of AN ENERGY POLICY FOR CANADA in June of last year. It presented Canada's needs for all forms of energy and produced the following scenario for coal:

"It is in the national interest to begin an orderly, long-term and more balanced use of all Canada's energy resources. Toward this end, it is vitally necessary to terminate the scientific lag in the production, processing, transportation and use of coal resources by promoting research and development related to coal."

The study went on to say:

"The minimum target for 1980 should be a Canadian coal production in the order of 37 million tons per annum. This will be barely adequate to take care of rising national demand, plus a normal growth of the export market."

Canada produced 22.5 million tons of coal in 1973. A record. We expect continued growth in 1974, yet we remain, on balance, a net importer of this commodity. Last year, about 17.3 million tons were imported from the United States for both thermal and metallurgical purposes. Most of this was for use in Ontario. In the same year, 11.1 million tons of mainly metallurgical coal were exported from Alberta and British Columbia, principally to Japan, but with some shipments to, and increasing interest being shown from other countries. Geography explains most of this exchange of coal. The mountain metallurgical mines are 700 rail miles from tidewater at Vancouver. They are 1,200 rail miles distant from the beginning of the Great Lakes' water transportation system.

The Energy Policy Report observed:

"The attainment of the 37 million ton target, with its beneficial effects on employment, national self-sufficiency in energy and, on balance of payments, cannot be expected to occur automatically. It can best be achieved if policies and planning are instituted on a nation-wide scale, in which the Federal Government acts in liaison with the Provinces and industry."

Global trade in coal was expected to grow to about 100 million metric tons annually by 1975, accounting for the import needs of Western Europe, South America and Japan. Canada's share of this trade is anticipated to reach 20 million annually by the end of this decade, and 25 million tons in the 1980's.

An associated benefit of participation in global markets is expansion of the Canadian industry which permits economies of scale to supply Canada's own needs at competitive prices. These enlargements will be of very material regional benefit, especially in Alberta and British Columbia, but their orderly attainment needs programming on a national scale in co-operation with the provinces and industry.

COAL IN A FAST CHANGING ENERGY SCENE

More than a year ago, the Energy Study said:

"The possible future competitive position of Western steam coals in the Ontario market depends not only on further price increases for American coal, but also, and more importantly, on the lowering of freight costs through the introduction of unit trains (express coal trains), and possibly coal pipelines."

This year of 1974 with its dramatic increase in petroleum costs has marked a turning point for coal in Canada. Important changes are now occurring in the historical pattern of coal supply and consumption which, until now, has been of an essentially regional nature.

The actions of last Fall and Winter, of the oil exporting countries, served to highlight in dramatic fashion the growing shortage of coal supply, especially in the United States. Almost immediately, the vulnerability of central Canadian industry to any restrictions on U.S. supplies became very clear. We saw the urgent need for up-grading of the transportation system to bring alternative coal supplies from western Canada to the Great Lakes.

At the same time, we focused, perhaps for the first time, on the fact that abundant and inexpensive oil and gas supplies were limited. This led to new interest in development of commercial-scale coal gasification and liquefaction processes to use the low-rank coals of Alberta and Saskatchewan.

In the western provinces, the central Canadian steel industry is seeking supplies from what has been, until now, the almost exclusive preserve of the Japanese export market; Ontario Hydro is seeking sources of bituminous coal with equivalent characteristics to its current U.S. supplies; thermal generation of electricity on the plains is being geared to mine-site coal-fired stations, with potential marketing of electricity outside of the provinces, and feasibility studies are under way to provide contingency capacity in coal gasification plants to maintain gas volumes in major pipeline systems.

In the current climate of coal supply in the United States, there is little chance of negotiating new long-term contracts because of the fluid price situation. As of April 1st, the U.S. suppliers to Ontario Hydro, with long-term contracts amounting to nine million tons per year, have increased the f.o.b. mine price by 50%. This, added to an increase in U.S. railway freight rates, has made western Canadian coal reserves not only important from a self-sufficiency standpoint, but also of interest in an economic context - provided, of course, that Canadian cost increases can be held below those of the United States. Ontario Hydro has therefore focused its attention, on locating coal reserves in western Canada as similar as possible to the U.S. high volatile bituminous coal currently being consumed.

There could well be a strike by the United Mine Workers at United States coal mines next November 12th. We are now studying the potential impact of such a work stoppage on Canadian consumers, and have moved to protect Canadian interests in this situation. All the same, it illustrates that our objective for national self-sufficiency in energy requirements requires an optimum contribution from all sources, including coal.

THE UP-GRADING OF TRANSPORTATION

Production capacity aside, present facilities in Canada would be strained to transport anything more than 1.5 million tons of western coal a year to eastern markets. Shipments out of Vancouver would only be feasible during the seaway shipping season because there are no large-scale transfer facilities for bulk cargoes like coal below the Great Lakes.

The twin factors of transportation costs and cheaper U.S. coal formerly were barriers to a market for western Canadian coal in the Great Lakes basin. This situation is rapidly changing. The up-grading of our coal transportation system is clearly a matter of immediate priority and there is a need to improve this system by 1976. The federal government is actively encouraging industrial interests in the development of a coal terminal at Thunder Bay. Early completion of this facility and the associated up-grading of track and the provision of unit train sets is seen by my department as being of the greatest urgency. The capacity of the first stage of a new Lakehead terminal should be five million tons per year, increasing to ten million tons by 1980.

EXPORTS

Exports of metallurgical coal to Japan by western Canadian operators reached 11.1 million short tons in 1973, fulfilling 85% of current long-term contractual commitments.

Contract selling prices, which were increased substantially in 1973, have been increased even more substantially in 1974 as a result of the world shortage of coking coal and the tight U.S. supply situation. Prices are now generally in the region of \$30.00 per long ton, f.o.b. Vancouver. Nearly all producers have now begun to generate cash flow after initial start-up problems.

Diversification of markets is now developing. In addition to the Canadian market small volumes of coal are being sold to the United States, Denmark, France and South Korea. This is welcomed, as it will provide more stability for present operations and potential developments. In this context, it may be noted that, unlike oil and gas, there is, at present, no Federal regulation of coal export, although, clearly, if export commitments expand faster than our knowledge of our coal inventory, caution will have to be exercised.

The basic question to be considered in examining export policy, centres on the permissible rate of export increase. Production must increase to meet expanding domestic requirements. How much do we want production to increase to meet export opportunities in a coal-hungry world? We must have a better knowledge of our coal inventory, not only as to quantity, but also as to quality and extraction economics, before the country is committed to a too rapid rate of coal resource exploitation. This is why the federal government is encouraging participation by the provinces and industry in a national inventory program of coal resource evaluation.

COAL IN A FEDERAL PROVINCIAL CONTEXT

When we talk about achieving national self-sufficiency in energy, we must talk about it in the context of Federal-Provincial co-operation.

In Nova Scotia, a Federal-Provincial program of coal evaluation has been started - to cover all fields in the Province. One independent group is drilling at present near Springhill, and DEVCO is expanding exploratory activities and beginning feasibility studies for a new mine.

In New Brunswick, a Federal-Provincial program to evaluate coal resources outside the Minto field is being prepared for commencement in 1975.

In Ontario, the Onakawana lignite deposit near James Bay has been evaluated as being able to fuel a 900 MW thermal plant for 25 years. Ontario Hydro has included such a plant in its long-term plans.

A very successful Federal-Provincial coal resource evaluation program in Saskatchewan is now entering the reporting stage. It seems to indicate adequate reserves for long-term expansion of thermal electric generation, and additional capacity for coal gasification. The drilling techniques, sample analysis procedures and computer programs developed during this project now form a sound framework on which to process the data from similar resource evaluation programs in future.

We would look forward to co-operation with the Governments of Alberta and British Columbia in studying the coal inventory of those Provinces. Then we would have a complete national picture of our coal resources - their quantity, rank and grade - so that Canada can make the best possible use of these important sources of energy. Independent resource appraisals might not apply identical criteria, nor, as I have noted before, would they make the best use of the coal expertise which is collectively available to us. Joint study would make it easier to plan a National Energy Policy which gives due consideration to coal.

The Alberta Energy Resources Conservation Board recently requested joint mineability studies with the Mines Branch of my department, on seams in the inner foothills region. A meeting is being scheduled for this month with my department, the Alberta Energy Resources Conservation Board, the B.C. Department of Mines and Petroleum Resources and industry in both provinces.

Alberta's measured reserves of sub-bituminous plains coal currently suggest a life estimate of 30 years, but intensive evaluation is required on an urgent basis to determine the scope of long-term thermal, gasification and liquefaction demands. As I have mentioned, high volatile bituminous coal found in the outer foothills comes closest of any Canadian coal to that imported from the United States by Ontario Hydro. This coal is also in demand in foreign markets. Only intensive evaluation of this coal belt will determine limits on production.

The measured reserves of bituminous metallurgical coal in the mountains of Alberta and British Columbia total 8 billion tons, but exploitation is economically limited to surface methods by current technology. Surface mineable coal resides in individual pockets, not in extensive deposits. These are estimated to contain only 1 billion tons, for a life index of about 40 years, at an annual production of up to 25 million tons. These limitations introduce a note of caution to present reserve calculations.

In completing my remarks on the need for Federal-Provincial co-operation on coal, I want to take this opportunity to suggest that I would welcome a conference on coal with the provinces concerned. I will be consulting with my counterparts at our next meeting with respect to their interest in such a conference.

THE NEED FOR MORE RESEARCH ON COAL

Earlier, I referred to the shift in federal activity toward research and development, related to coal.

Following the 1973-74 energy crisis, the Canadian Government, along with most others, re-examined its research effort in the energy field. A casual comparison of the annual expenditures on nuclear versus coal research, shows that in 1973-74 the federal government funding of coal research, and closely related activities, approximated \$3.6 million, substantially below nuclear and uranium industry expenditures of \$63.8 million. This clearly suggests an imbalance. The situation is receiving active study by a Task Force on Energy Research and Development established in January of this year under the chairmanship of my Deputy Minister. The Task Force is expected to report later this year to the Federal Cabinet. As in most other areas of research, international co-operation appears both practical and desirable.

In August this year, experts from China spent two weeks studying open-pit coal mines in Canada. On September 18th, a Canadian Coal Mission to China will take a close look at hydraulic coal-mining techniques. As you know, Kaiser Resources currently operates successful hydraulic mining at Sparwood, British Columbia. Other applications of hydraulic mining will be needed to adapt to more difficult conditions, such as below-grade operations. Russia has developed methods which could be of relevance to Canada in this regard. The technical exchange agreement between Canada and the Soviet Union would provide a basis under which access to such technology can be explored.

CONCLUDING COMMENT

In making my comments and predictions about coal in the context of national self-sufficiency in energy, I have referred to coal in a fast changing energy scene. Predictions about the rising importance of domestic coal supply would not have been made even three or four years ago with the certainty that we can claim today. The forecasters of the mid-1950's, missed the mark by a wide margin. Canada has already passed their 1980 coal production forecast and doubled the export forecast. Of most significance, however, the current level of imports, which is not likely to rise materially during the rest of this decade, is only one-third of the level forecast for 1980 made back in the mid-1950's.

Present trends demonstrate that coal is developing a significant role in Canada's self-sufficiency drive, notwithstanding the forebodings of the forecasters of 20 years ago. The extent to which they will prove to have been wrong remains, of course, to be seen in 1980. It will all depend on how effectively industry and government jointly pursue the types of initiatives being discussed in this Conference, in a year of great change and opportunity for coal.

It has been a privilege and a pleasure to present this keynote address, and I look forward to the submissions of world-recognized experts on the role of coal in achieving self-sufficiency in energy. I expect this Conference to provide useful direction for all Canadians who are concerned with the possibilities implied in your Conference theme.

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